

420 420PC

Multijet meter
Wet dial / Semi dry – Protected dial
HRI AMR interface



Main characteristics

DN15 to 40 PN 16

Outstanding long life stable performance due to the wet dial register of 420 meter

Excellent legibility of the register on all networks due to the protected dial of 420PC

AMR compatible with HRI systems providing a pulse weight from 1 litre

Strong protection against tampering

Robust, suited to extended periods of immersion

Optional customized meter marking (serial number, bar code, customer logo)

Applications

As with all meters in the Sensus portfolio, the wet dial 420 and protected 420PC multijet meter benefits from our long experience in the manufacture of high-performance meters.

The 420/420PC reliability, resistance to bad water quality and quiet operation will satisfy both end users and network managers.

The dial is housed in a case filled with lubricant, which means it is protected from the impurities in the network. It can be read perfectly under all conditions and is not affected by fogging or the build up of algae.

The new oversized identification plate legibly shows all the meter characteristics and provides the possibility for a customized bar code or logo.

Through its standard HRI interface the 420/420PC can be used in any network where a reliable and versatile AMR system is required. The HRI solution is retrofittable and can be added at any time after the meter has been installed.

Available options

Non return valve

HRI electronic sensor (Data Unit, Pulse Unit, Sensus((S))cout)

Connectors

Accuracy

The balanced force and upward movement of the water in the injection box means that the starting flow rate is low.

The direct transmission gives the 420/420PC a good sensitivity, especially at low flow rates.

Reliability

The 420/420PC meter has high protection against corrosion, water hammer, pressure and heat due to the use of high quality copper alloy and thick polycarbonate window.

The internal components, made of high-grade polymers, have been designed to preserve the initial performance of the meter:

- The turbine is supported by sapphire which prevents shaft wear
- The surface finish of the injection box prevents deposits forming. The double filtration provided by the pipe strainer and the seat filter prevents foreign bodies passing through the mechanism.

Register

The 5-drum display has large digits (5mm high) on a white background. This means the meter can be read from a distance of over one meter. Pointers on the dial show sub-multiples of a m³.

The register wheels for m³ and the first pointer are immersed in a lubricant, ensuring optimum operation and protection. This technique prevents any condensation and enables perfect legibility of the counter under all conditions, irrespective of the nature of the water.

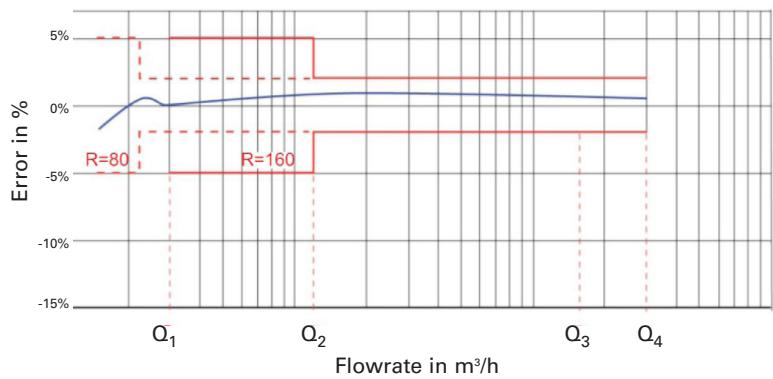
The counter is protected by a very thick polymer glass designed to withstand the pressure and environment changes during all meter life.

Tampering protection

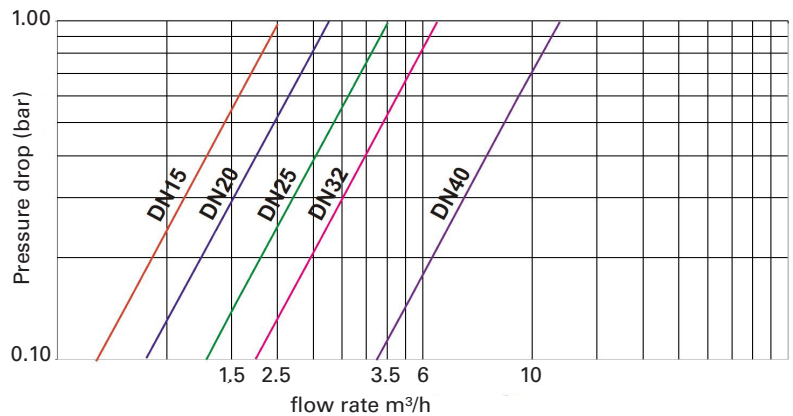
Through its design, the 420/420PC offers extreme high protection against tampering to avoid any misuse of the meter:

- As the meter has no magnetic transmission and a magnet free HRI interface, it is totally unaffected by a magnet placed near the meter
- The use of a robust brass body combined with a thick (8 mm) polycarbonate window prevents any mechanical tampering.

Typical accuracy curve



Typical Head Loss Curve



Compliance

The 420/420PC meter complies with:

- ISO 4064,
- Recommendation n°49 of the OIML,
- PN-ISO 14154

Approvals

The 420/420PC meter is approved to the PN-ISO 14154 pattern approval for installation in horizontal position:

MID SK 08-MI001-SMU/003

Q = 2,5; 4; 6,3; 10; 16

On request, the 420PC meter can be delivered stamped in the lower R according to the approval.

Marking

Two arrows on the body show the direction of flow.

The nominal flowrate, the metrological class, the MID pattern approval number, the year of manufacture and the individual meter number are engraved on the identification plate on top of meter.

The manufacturer's name and the type of the meter are printed on the dial.

The meter can be customized on request with specific serial number, bar code or logo.

Installation and maintenance instructions

The 420/420PC meter must be installed in a low point of the pipeline.

The meter must be installed with the arrow cast on the body corresponding to the direction of water flow.

Before fitting the water meter, all pipe work must be flushed out to remove all foreign bodies.

An upstream valve is recommended to allow installation and removal of the meter. When turning on the water supply, the upstream valve must be opened slowly in order to fill the meter with water smoothly.

During tightening, the meter can be maintained in position with a standard tool using to the flats on the pipe.

No special maintenance is required.

Performance Data

Metrological characteristics – ISO 14154

Nominal size	DN	mm	15	20	25	32	40
Permanent flow rate	Q ₃	m ³ /h	2.5	4	6.3	10	16
Value of ratio R	Q ₃ /Q ₁	-	160/80/40				
Overload flow rate	Q ₄	m ³ /h	3.125	5	7.875	12.5	20
Minimum flow rate	Q ₁ (tolerance ±5%)	l/h	16	25	39	63	100
Transitional flow rate	Q ₂ (tolerance ±2%)	l/h	25	40	63	100	160
Ratio	Q ₂ /Q ₁	-	1.6	1.6	1.6	1.6	1.6

Technical characteristics – ISO 14154

Nominal flow Q ₃	m ³ /h	2.5	4	6.3 and 10	16
Nominal size DN	mm	15, 20	15, 20, 25	25, 32	40
Register type	-	Semidry			
Indication range	m ³	10 ⁵			
Calibration value	m ³	0.05			
Maximum admissible pressure /MAP/	bar	16			
Working pressure range / Δp/	bar	0.3 to 16			
Pressure loss	bar	0.63			
Temperature class /MAT/	°C	T 50			
Flow profile sensitivity classes	-	U0, D0			
Position	-	H			
Connection		G ¾ B	G ¾ B	G 1¼ B	G 2 B
Climatic and mechanical environments	-	Closed spaces/from -10 °C until 55 °C/ mech.class M2			
Electromagnetic environments	-	E1			

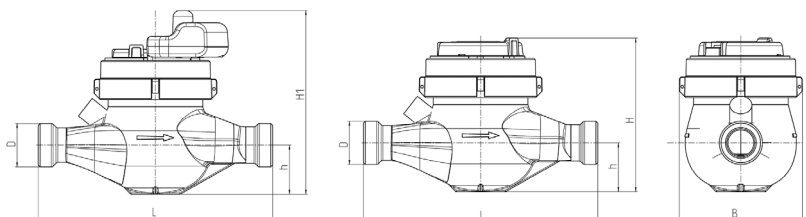
Dimensions and Weights

Dimensional characteristics

Nominal Size	DN (Qn)	mm	15	20	25	30	40
Length	L	mm	165 ⁽²⁾	190 ⁽¹⁾	260	260	300
Width	D	mm	96	96	103	103	134
Total height	H	mm	120	120	135	135	152
Total height with assembled HRI			150	150	165	165	182
Height to pipe axis	h	mm	34	36.5	45	45	61
Piping dimension		inch	½"	¾"	1"	1¼"	1½"
Tail piece	Diameter	inch	¾" ⁽³⁾	1"	1¼"	1½"	2"
thread	Pitch	mm	26.44	33.25	41.91	47.80	59.61
Weight		kg	1.814	2.309	2.309	2.309	2.309
			1.4	1.6	2.3	2.5	5.0

⁽¹⁾ also available in length 145 and 170 mm ⁽²⁾ also available in length 165 mm

Dimensional Diagram



HRI Options

The dial of the 420/420PC meter is equipped as standard with a pointer able to activate the HRI sensor. The HRI reproduces the mechanical register index exactly, by detecting the direction of rotation of the pointer. It provides a reliable pulse- and data interface for remote and mobile readout. The HRI can be fitted in the field on already installed Sentinel water meters or ordered factory fitted to the meter.

For more information refer to the leaflets LS 8100 and LS 3300

The HRI is available as three versions:

1. HRI Pulse Unit (A-version)

The litre pointer activates the HRI allowing a basic resolution of one litre per pulse. The output pulse value can be factory set using the divisor D

(e.g. D = 100 means 1 pulse per 100 litres).

The possible pulse output D values are (amongst others):

1 / 10 / 100 / 1000 / 2.5 / 25 / 250

2. HRI Data Unit (B-version)

The HRI Data Unit is a data interface which supplies the meter reading as well as the serial or customer number. This version additionally provides a pulse output as described above.

The HRI Data Unit can be connected to a M-Bus network for remote read or a MiniPad for mobile inductive read (MiniBus), both in accordance with the IEC 870 or Sensus protocol.

3. Sensus((S))cout-S Radio Unit

Integrated Sensus((S))cout radio with the usage of long term proven and reliable HRI sensing technology. Radio read is made via the handheld Psion WA pro and SensusREAD software

For any additional information about the HRI, please refer to the data sheets LS 8100 and LS 3300.



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